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10/587,151	02/20/2007	Elio Poggioliolmi	66455-275-7	4994
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EXAMINER				
MISA, JOAN D				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/587,151

**Applicant(s)**

POGGIAGLIOLMI ET AL.

**Examiner**

JOAN D. MISA

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 24-29, 31-48 and 50-64 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 24-29, 31-48, 50-57, 59-61, and 63-64 is/are rejected.
- 7) ☒ Claim(s) 58 and 62 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "hydraulic arm" in claim 63 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claim 47 is objected to because the claim contains the phrase "and/or" which render the claims indefinite. For the purpose of this examination, the examiner considers "and/or", cited in the previously listed claims, to read as merely "or". Appropriate correction is required for claim 47 and other claims that contain the "and/or" phrase.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24, 27-29, 31-35, 57, and 59-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pellenc (FR 2,639,176), with reference to a machine translation, in view of Zehavi et al. (5,473,875), hereafter Zehavi '875.

In re claim 24, given the structure of a vibrating device for removing fruit from a plant, the following method step would inherently be performed when using the device disclosed by Pellenc: *connecting drive means ("verin alternatif" 38) to the plant to apply vibrations thereto, wherein the vibrations have a time-variable frequency*, as disclosed in Figure 6 and page 1, lines 25-33 and page 8, lines 9-12 and 22-24. However, Pellenc fails to disclose wherein the frequency can be controlled, sweeping the frequency of the vibrations linearly or non-linearly from an initial sweep to a final sweep.

Zehavi '875 teaches that "the range of frequencies through which the vibration units are optimally drawn is determined by the characteristics' of the tree being shaken... trees of a given type tend to exhibit natural resonance frequencies that vary only within a narrow band." (col.5, lines 25-30) Therefore to sufficiently locate the resonance frequency of a given tree, which results in the most efficient harvest when the tree is vibrated at this frequency, the control means (computer 54) vibrates the vibratory head at a varying or sweeping frequency (col.5, lines 10-34 and col.6, lines 13-14 and 19-20). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the control means of Pellenc to vibrate at a varying or sweeping frequency as taught by Zehavi '875, in order to sufficiently locate the resonance frequency of a given tree which results in the most efficient harvesting. Due to the modification above, the method of *conducting the harvesting of fruit from the plant by sweeping the frequency of vibrations* is met; in other words, the harvesting of fruit from the plant is conducted by sweeping the frequency of vibrations.

In re claims 27-28, the combination of Pellenc and Zehavi '875 further discloses on page 2, lines 13-21; page 8, lines 12-21; and Figure 6 of Pellenc, the method of claim 24:

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- a. Per claim 27, *including measuring acceleration or displacement of the vibrations using at least one sensor* ("des capteurs magnétiques" 49a & 49b);
- b. Per claim 28, *further comprising the step of adjusting at least one of the frequency, phase, and amplitude of the vibrations in dependence on sensor measurement.*

In re claim 29, the combination further discloses the method of claim 24, *including manually adjusting at least one of the frequency, amplitude, and phase of the vibrations*, as suggested on page 10, lines 28-34 of Pellenc.

In re claims 31-34, the combination (specifically Pellenc) further discloses the device of claim 24; however, the combination does not expressly disclose the following:

- a) Per claim 31, *wherein the initial sweep frequency is higher than the final sweep frequency;*
- b) Per claim 32, *wherein the initial sweep frequency is lower than the final sweep frequency;*
- c) Per claim 33, *wherein the vibrations include a modulation component which has a much lower frequency than the sweep frequency; and*
- d) Per claim 34, *the step of limiting the range of frequencies of the vibrations by means of a band pass filter.*

However, given the fact of the issues known in the art as disclosed by the applicant, with the use of one single dominant frequency, the trees are prone to damage, often including substantial removal of leaves and/or twigs of the tree. It would have been obvious to vary the frequency of the vibration, according to the limitations of claims 31-34, depending on certain factors, such as the size of the tree or fruits, the time of the harvest, the ripeness of the fruits, etc., to prevent such damage to the tree and achieve high harvesting efficiency. Thus, the examiner considers that the electronic device that controls the servo valve of the device of Pellenc used to adjust the frequency and/or amplitude of the movement of the vibration head, inherently meets the limitations of claims 31-34.

In re claims 35, the combination (specifically Pellenc) discloses the method of claim 24, except for *the step of omitting frequencies from the vibrations which cause leaf detachment from the tree*. However, given that the applicant discloses that an issue with current mechanical shaking devices is that "mechanical shaking methods damage the trees and leads to the unwanted removal of leaves and small branches" (pg. 1, lines 20-21 & pg. 2, lines 2-6), it would have been obvious to one of ordinary skill in the art at the time the invention was made to omit applications of frequencies that cause leaf detachment from the tree from the vibrations since removal of leaves and small branches due to mechanical shaking methods are deemed unwanted.

In re claim 57, the combination (specifically Pellenc) discloses the combination he method of claim 24, wherein the vibrations further have at least one of a phase and an amplitude which varies with time (refer to Figure 6 and page 1, lines 25-33 and page 8, lines 9-12 and 22-24 of Pellenc).

In re claim 59, the combination (specifically Pellenc) discloses the method of claim 24, wherein the vibrations are controlled by electronic control means (refer to page 10, lines 11-34 of Pellenc).

In re claim 60, the combination discloses the method of claim 24, wherein the frequency of the vibrations exploits the pendulum-like non-linear resonance properties of the fruit-stem combination (col.5, lines 25-30 of Zehavi '875).

In re claim 61, the method according to claim 28, wherein said adjusting step comprises one of reducing vibration amplitude and momentarily increasing rate of change of the vibration frequency of the driving motion (page 8, lines 22-31 and page 9, lines 9-13 of Pellenc; the examiner notes that in order to achieve a minimum amplitude and maximum frequency disclosed in page 8, lines 25-31 of Pellenc, the amplitude and frequency would have to be adjusted such that the amplitude is reduced and the frequency increased).

Claims 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pellenc in view of Zehavi '875 in view of Zehavi et al. (2004/0079065), hereafter Zehavi '065.

In re claims 25, the combination of Pellenc and Zehavi '875 discloses the method of claim 24 above, except wherein the vibrations are substantially unidirectional. Zehavi '065 discloses a method inherent in a device for removing fruit from a plant, *wherein the vibrations are substantially unidirectional*, as disclosed on page 1, paragraph 009 and 013. According to Zehavi '065, the advantage of using a unidirectional force or vibration is that optimal harvesting results can be achieved and shaking-vibration harm to the mechanical device, to the vehicle, and to the driver can be prevented (Para. 009). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the vibratory head of the device of the combination to provide a unidirectional force between the reaction mass and clamping means, as taught by Zehavi '065, in order to achieve optimal harvesting result and prevent detrimental effects on the mechanical device, the vehicle, and the driver.

In re claims 26, the combination of Pellenc, Zehavi '875 and Zehavi '065 further discloses the method of claim 24 above, *wherein the vibrations are applied to the plant substantially normally to a longitudinal axis of the plant*, as disclosed in page 1, paragraph 013 and as shown in Figure 1 of Zehavi '065, wherein the shaking direction is along the x-axis and the longitudinal axis of the plant is the axis emerging from the paper.

Claims 36-48, 50-56, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pellenc in view of Zehavi '875, Zehavi '065, and Staron et al. (5,382,760), hereafter Staron.

In re claim 36, Pellenc discloses in Figure 4 a device for removing fruit from a plant comprising:

- a) a vibratory head, as illustrated in Figure 4, *having means ("la pince" 40 & 41) for clamping a fruit plant to apply vibrations to the plant, and means ("la servo-valve" 47) for controlling the vibratory head,*
- b) *the vibratory head further comprising at least one reaction mass ("verin alternatif" 38) which is vibratably driveable and connected to the clamping means (40 & 41) for relative*

*movement therebetween to provide a unidirectional force transmittable between the reaction mass and the clamping means, and hence transmittable to the plant.*

However, Pellenc fails to disclose that the vibratory head is controlled by vibrating at a time-varying frequency which sweeps linearly or non-linearly from an initial sweep frequency to a final sweep frequency. Zehavi '875 teaches that "the range of frequencies through which the vibration units are optimally drawn is determined by the characteristics' of the tree being shaken... trees of a given type tend to exhibit natural resonance frequencies that vary only within a narrow band." (col.5, lines 25-30) Therefore to sufficiently locate the resonance frequency of a given tree, which results in the most efficient harvest when the tree is vibrated at this frequency, the control means (computer 54) vibrates the vibratory head at a varying or sweeping frequency (col.5, lines 10-34 and col.6, lines 13-14 and 19-20). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the control means of Pellenc to vibrate at a time-varying or sweeping frequency as taught by Zehavi '875, in order to sufficiently locate the resonance frequency of a given tree which results in the most efficient harvesting.

Furthermore, the combination of Pellenc and Zehavi '875 fails to disclose that the vibratory head provides a unidirectional force transmittable between the reaction mass and the clamping means. Zehavi '065 discloses a device for removing fruit from a plant wherein the vibratory head (linear vibration generator 4) provides a *unidirectional force transmittable between the reaction mass and the clamping mean*, as suggested in the abstract, lines 9-10; page 1, paragraph 009; and page 5, paragraph 053 which corresponds with Figure 1. According to Zehavi '065, the advantage of using a unidirectional force or vibration is that optimal harvesting results can be achieved and shaking-vibration harm to the mechanical device, to the vehicle, and to the driver can be prevented (Para. 009). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the vibratory head of the device of the combination to provide a unidirectional force between the reaction mass and clamping means, as taught by Zehavi '065, in order to achieve optimal harvesting result and prevent detrimental effects on the mechanical device, the vehicle, and the driver.

Furthermore, the combination of Pellenc, Zehavi '875, and Zehavi '065 fails to disclose that said reaction mass is slidably held in a cage of bars having friction reducing means. Staron teaches an alternate vibrating means (seismic source 5) comprising a reactive mass (8) that is slidably held in a cage of bars (guide rails 9). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute a similar vibrating means as that of Staron for the vibrating means of the combination as an alternate type of vibrating means capable of providing vibration to the fruit removing device and thus to the tree.

In re claim 37, the combination of Pellenc, Zehavi '875, Zehavi '065, and Staron further discloses the device of claim 36, *wherein the control means comprise electronic control means ("la servo-valve" 47 of Pellenc) which also controls at least one of the amplitude and phase of the vibrations*, as suggested on page 1, lines 25-33 and page 8, lines 7-13 of Pellenc.

In re claims 38-41, the combination further discloses:

- a) Per claim 38, the device of claim 36, *wherein the or each reaction mass (8 of Staron) comprises at least one of a hydraulic cylinder and piston (8 of Staron is integral with a jack 10 which comprises cylinder 11 and piston 12);*
- b) Per claim 39, the device of claim 38, *wherein the hydraulic piston (12) and cylinder (11) are driven by pressurized fluid which is selectively applied to chambers of the hydraulic cylinder (11) by a valve (supply valve 17), as disclosed in column 4, lines 1-28 of Staron.*
- c) Per claim 40, the device of claim 38, *wherein the reaction mass (8) comprises a piston (12).*
- d) Per claim 41, the device of claim 38, *wherein the reaction mass (8) comprises a cylinder (11).*

In re claim 42 and 43, the combination discloses the device of claim 38 except for *two cylinders and two pistons*, per claim 42, or *more than two pistons and cylinders arranged orthogonally to one*

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*another for placement around a trunk or branch of the plant and drivable sequentially*, per claim 43.

However, the combination discloses the device of claim 38 having one cylinder (38a of Pellenc equivalent to 11 of Staron) and one piston (38b of Pellenc equivalent to 12 of Staron). This limitation simply amounts to adding the same device to an existing structure twice or more than twice. Specifically, the applicant merely describes multiple pistons and multiple cylinders already described in the singular. Accordingly, the examiner considers these two limitations to be duplication or multiplication of parts. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to duplicate or multiply the piston and cylinder of the device of the combination since it has been held that duplication or multiplication of the essential working parts of a device involves only routine skill in the art. MPEP 2144.04.

In re claims 44-45, the combination further discloses the device of claim 36,

- a) Per claim 44, *wherein the vibrations of the or each reaction mass are substantially unidirectional*, as disclosed on page 1, paragraph 009 and 013 of Zehavi '065;
- b) Per claim 45, *wherein the vibratory force is applied to the plant substantially normally to the longitudinal axis of the plant*, as disclosed in page 1, paragraph 013 and as shown in Figure 1 of Zehavi '065, wherein the shaking direction is along the x-axis and the longitudinal axis of the plant is the axis emerging from the paper.

In re claims 46-47, the combination further discloses on page 2, lines 13-21, page 8, lines 12-21, page 8-10, and Figure 6 of Pellenc, the device of claim 36:

- a) Per claim 46, *further comprising sensors ("des capteurs magnétiques" 49a & 49b) for measuring at least one of the acceleration, velocity, and displacement of the vibrations*;
- b) Per claim 47, *wherein at least one of the frequency, phase, and amplitude of the vibrations of the reaction mass are adjustable in dependence on the sensor information*.

In re claim 48, the combination further discloses the device of claim 36, *wherein the control means are manually adjustable*, as suggested on page 10, lines 28-34 of Pellenc.

In re claims 50-53, the combination discloses the device of claim 36, but does not expressly disclose the following:

- a) Per claim 50, *wherein the initial sweep frequency is higher than the final sweep frequency*;
- b) Per claim 51, *wherein the initial sweep frequency is lower than the final sweep frequency*;
- c) Per claim 52, *wherein the vibrations include a modulation component which has a much lower frequency than the sweep frequency*; and
- d) Per claim 53, *wherein the frequency range is limited by a band pass filter*.

However, given the fact of the issues known in the art as disclosed by the applicant, with the use of one single dominant frequency, the trees are prone to damage, often including substantial removal of leaves and/or twigs of the tree. It would have been obvious to vary the frequency of the vibration, according to the limitations of claims 50-53, depending on certain factors, such as the size of the tree or fruits, the time of the harvest, the ripeness of the fruits, etc., to prevent such damage to the tree and achieve high harvesting efficiency. Thus, the examiner considers that the electronic device that controls the servo valve of the device of the combination used to adjust the frequency and/or amplitude of the movement of the vibration head, inherently meets the limitations of claims 50-53.

In re claim 54, the combination discloses the device of claim 36, except *wherein frequencies which cause leaf detachment from the tree are substantially omitted from the vibrations*. However, given that the applicant discloses that an issue with current mechanical shaking devices is that "mechanical shaking methods damage the trees and leads to the unwanted removal of leaves and small branches" (pg. 1, lines 20-21 & pg. 2, lines 2-6), it would have been obvious to one of ordinary skill in the art at the time the invention was made to omit applications of frequencies that cause leaf detachment from the tree

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from the vibrations since removal of leaves and small branches due to mechanical shaking methods are deemed unwanted.

In re 63, given the modification of Pellenc, Zehavi '875, Zehavi '065, and Staron, the cage is considered to be firmly attached to a hydraulic arm (Figure 1 of Pellenc, 18).

Claims 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pellenc, Zehavi '875, Zehavi '065, and Staron, as applied to claim 38 above, and further in view of Podolsky et al. (WO 2004/006646).

In re claim 55, the combination of Pellenc, Zehavi '875, Zehavi '065, and Staron discloses the device of claim 38 above, except wherein the vibratory head is mounted on carrying means with respect to which the vibratory head is independently movable. Podolsky et al. discloses a device for the orchard harvesting, *wherein the vibratory head is mounted on carrying means* (Fig. 3, rockers 17 & 19) *with respect to which the vibratory head is independently movable*, (Pg. 14, lines 15-17). The purpose of the housing (or vibratory head) being suspended on the frame via the rockers is to prevent vibration transmission to the body of the vehicle, as disclosed by Podolsky on page 8, lines 6-9. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Pellenc to include the carrying means of Podolsky et al. in order to prevent vibration transmission to the body of the vehicle.

In re claim 56, the combination of Pellenc, Zehavi '875, Zehavi '065, and Staron discloses the device of claim 38 above, except *wherein the drive means utilizes electromagnetic or pneumatic force to oscillate the reaction mass*. However, since the applicant has not disclosed that having electromagnetic or pneumatic force to oscillate the reaction mass solves any stated problem or is for any particular purpose, and it appears that the device would perform equally well with the drive means using either of the forces, the examiner considers that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a drive means that utilizes electromagnetic or pneumatic force to

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oscillate the reaction mass as a matter of design choice, as further supported by Podolsky on page 9 lines 9-11.

Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pellenc, Zehavi '875, Zehavi '065, and Staron, as applied to claim 36 above, and further in view of Brenek (5,842,333).

In re claim 64, the combination of Pellenc, Zehavi '875, Zehavi '065, and Staron discloses the device of claim 36, but fails to specify that the friction reducing means comprises Teflon® strips. Brenek teaches that a low friction means for reducing forces and stress between moving components may comprise coatings or strips of low friction material such as Teflon® (column 6, lines 56-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the friction reducing means of the combination to use Teflon® as taught by Brenek in order reduce the forces and stress between the moving components.

#### ***Allowable Subject Matter***

Claims 58 and 62, which are stated below, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 58: "The method according to claim 24, wherein the vibrations are controlled by complex time variable signal codes."

Claim 62: "The device according to claim 37, wherein the electronic means supplies a complex time variable signal to control the vibratory head."

#### ***Response to Arguments***

Applicant's arguments filed 4/15/2009 have been fully considered but they are not persuasive. With respect to applicant's argument to the rejection of claim 24, referring to the limitation that the method steps of "conducting the harvesting of fruit from the plant by sweeping the frequency of the vibrations..." , the examiner still considers that the combination of Zehavi and Pellenc teach such limitation, that the harvesting of fruit from the plant is conducted by sweeping the frequency of the vibrations. The examiner

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believes that applicant's argument is more specific than what is claimed. No where in the claim is the frequency swept during the harvesting, as argued by the applicant on page 8, line 9 of the Remarks. Furthermore, since the sequential order of the method claims are not identified, the order of when the steps are to be done is irrelevant.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Rau (2005/0252711) teaches a reactive mass (Figures 3 and 3A, 10A) slidably held in a cage of bars (52) - claim 36. Muller et al. (4,706,231) teaches a similar type of reaction mass (26) for a vibration device. Roessler (5,331,607) teaches a sweep frequency vibrator.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOAN D. MISA whose telephone number is (571)270-3745. The examiner can normally be reached on Monday - Friday, 8:00am - 5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Will, can be reached on (571) 272-6998. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas B Will/  
Supervisory Patent Examiner  
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JDM 7/19/2009